

--IN THE CLAIMS--

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.(currently amended) A method of expressing PCA (protein complementation assays) interacting partners in plant material comprising:

Q3 (A) transforming said plant material with:

(1) a first partner construct coding for a first fusion product comprising:

(a) a first fragment of a first ~~molecule~~ protein whose fragments can exhibit a detectable activity when associated and

(b) a first protein-protein interacting domain; and

(2) a second partner construct coding for a second fusion product comprising:

(a) a second fragment of said first ~~molecule~~ protein and

(b) a second protein-protein interacting domain that can bind (1)(b);

(B) culturing said material under conditions allowing expression of said PCA interacting partners, and allowing interaction of said first interacting domain with said second interacting domain;

(C) ~~detecting said activity~~ directly or indirectly testing for reconstitution of said activity when said protein fragments are associated.

2. (currently amended) The method of claim 1 wherein the said plant material is selected from the group consisting of whole plants and plant-derived organs, tissues, cells, subcellular parts, and protoplasts.

3. (currently amended) The method of claim 1 or claim 2 wherein the said plant material is derived from a transgenic plant.

4. (currently amended) The method of claim 1 where wherein an inducer is added in step (B) to facilitate the interaction of said first protein-protein interaction domains interacting domain and said second protein-protein interacting domain, wherein culturing with said inducer increases the level of said detectable product over the level detectable when culturing without said inducer under otherwise identical conditions.

5. (currently amended) The method of claim 1 or 4 wherein said detectable product is a detectable fluorescent product ~~a fluorescent substrate is added~~ and wherein said activity is detected using detection means is selected from the group consisting of fluorescence microscopy, spectrofluorometry, FACS analysis, or and a fluorescence-detecting video system.

6. (currently amended) The method of claim 1 or 4 where wherein said plant material is cultured on a ~~selective~~ medium selective for the enzymatic activity of said enzyme reporter molecule.

Claims 7-26 (withdrawn)

Claim 27. (new) The method of claim 1 wherein said first and second protein fragments which exhibit activity when associated are derived from dihydrofolate reductase (DHFR) and wherein said plant material is cultured on medium selective for DHFR activity.

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Claim 28. (new) The method of claim 1 wherein said transforming comprises a method selected from the group consisting of electroporation and vacuum infiltration.

Claim 29. (new) The method of claim 4 wherein said first and second protein fragments which exhibit activity when associated are derived from dihydrofolate reductase (DHFR) and wherein said plant material is cultured on medium selective for DHFR activity.

Claim 30. (new) The method of claim 4 wherein said inducer is selected from the group consisting of rapamycin and salicylic acid.

Claim 31. (new) A method of expressing PCA (protein fragment complementation assays) interacting partners in plant material comprising:

(A) transforming said material with:

(1) a first construct coding for a first fusion product comprising:

(a) a first fragment of a first enzyme reporter whose fragments can exhibit a detectable activity when associated and

(b) a first protein-protein interacting domain; and

(2) a second construct coding for a second fusion product comprising:

(a) a second fragment of said first enzyme reporter and

(b) a second protein-protein interacting domain that can bind (1)(b)

wherein said interacting partners are comprised of a first partner and a second partner comprised of said first fusion product and said second fusion product respectively, and wherein said first fusion product and said second fusion product are able to interact and associate to reconstitute an active enzyme reporter molecule;

(B) culturing said material under conditions allowing expression of said PCA interacting partners and allowing interaction of said first interacting domain with said second interacting domain, wherein said conditions include the presence of a substrate for said active enzyme reporter molecule and wherein said substrate forms a detectable product when acted upon by said active enzyme reporter molecule; and


(C) detecting said detectable product by a detection means capable of detecting said detectable product.

Claim 32. (new) A method of expressing PCA (protein fragment complementation assays) interacting partners in plant material comprising:

(A) transforming said material with:

(1) a first construct coding for a first fusion product comprising

- (a) a first fragment of a first molecule and
- (b) a first protein-protein interacting domain; and
- (2) a second construct coding for a second fusion product comprising
 - (a) a second fragment of said first molecule and
 - (b) a second protein-protein interacting domain that can bind (1)(b)

 wherein said interacting partners are comprised of a first partner and a second partner comprised of said first fusion product and said second fusion product respectively, and wherein said first fusion product and said second fusion product are able to interact and associate to form an enzymatically active molecule;

(B) culturing said material under conditions allowing expression of said PCA interacting partners and allowing interaction of said first interacting domain with said second interacting domain, wherein said conditions include the presence of a substrate for said enzymatically active molecule and wherein said substrate forms a detectable fluorescent product when acted upon by said enzymatically active molecule; and

(C) detecting said fluorescent product by a detection means capable of detecting said fluorescent product, wherein said first molecule is a dihydrofolate reductase molecule (DHFR).

Claim 33. (new) The method of claim 32 wherein an inducer is added in step (B) to facilitate the interaction of said first protein-protein interacting domain and said second protein-protein interacting domain and wherein culturing with said inducer increases the level of detectable fluorescence from said fluorescent product over the level detectable

when culturing without said inducer under otherwise identical conditions.

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